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SYMPOSIUM NO 6 OF WOMEN OF THE ELECTRICAL EMPLOYERING IMPRITUTE, A SAUGHY OF BOLIENCES GURAINIAN SON

This symposium of works contains actentific articles which reflect basic trends in the work of the Electrical Engineering Institute of the Academy of Sciences Ukrainian 20th. The article by 8.4. Lebedev, Active Lember of the Academy of Sciences Ukrainian 20th and director or the Electrical Engineering Institute, L.*. Leanerskip, Chadidate of Technical Sciences, and Ye. A. Shkabara, Candidate of Technical Sciences, concerns problems in automatic electronic devices; the parameters of vacuum-tube computing elements are considered in these articles, and methods for selecting them are given.

Circuits and calculation techniques for de amplifiers with feedback, used to perform operator functions, are considered in the article by 1. N. Dashevskiy, Z. L. Babinovich, and I. F. Baulova.

A number of the papers are given to problems of automatic process control and the theory of regulation. These works include (1) the article by A. C. Ivakhnenko, Candidate of Technical Sciences, in which regulation systems are investigated and conclusions and practical recommendations are given for the design of improved servo and regulation systems; (2) the serticle by Ye. A. Shkabara, Candidate of Technical Sciences, in which the author in maintaining the assigned speed; (3) the serticle by V. L. Lenin, Candidate of Technical Sciences, in which the necessary conditions are determined for maximum output of copper-oxide wattheters used as measuring elements in an active-power regulator; and (4) the article by C. K. Sechayev, Candidate of Technical Sciences, in which the author cites a calculation of the elements of a voltage regulator employing a thermistor.

In his article, A. K. Kotel'nikov, Corresponding Rember of the Academy of Sciences Ukrainian SSR, investigates the propagation of plane waves by using energy flow and density instead of vectors of the field.

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- I. M. Sirota, Candidate of Technical Sciences, considers the problem of the calculation of magnetic fields caused by line currents when an iron mass surrounds the current-carrying conductor.
- P. P. Ornatskiy, Candidate of Technical Sciences, which the results of his work on the study of various electronic wattmeter systems and gives valuable practical conclusions on the application of these wattmeters.

The section "Systems and Davices Leveloped by the Institute, and Sample Calculations" includes an article by F. A. Kather, Candidate of Technical Sciences, and another by A. G. Ivakhnenko and E. Te. Fevraleva. Matkov describes a highly sensitive recording electronic frequency meter with a string vibrator, developed by the institute. Ivakhnenko and Fevraleva give an approximate calculation and results of laboratory tests of a magnetic repeter which eache used for remote transmission of wattmeter readings.

Firle? abstracts, which is the original proceded each article, follow.

 Mectroric, Computing Devices, J. A. Meshevskiy, and De. A. Chhalara, pp 5-14

Considers electrical circular of sugest, a decises, at the permit control from several customer, circulars, lives a smallplace, and graphical calculation of a computing device. Cites a mathet for selecting the elements of a computing device and determines the dependency of the bias voltage on the amplitude of the control signals. The results of the calculation have been checked experimentally.

M. Amplifiers for Continuous-Action Electronic Computing Levices,
 L. N. Enshevskiy, E. L. Rebinovich, and I. D. Chalova, bp 14-26

Investigates coronits for using desamplifiers of the feedback to act as operators (in differentialities where ratio the ratios equations relations the output to the regular toward. The area of the formulation of an amplifier of invalidation of the amplifier of invalidation of the amplifier of invalidation of the amplifier.

Instance of Electronic ettic hearly Directa a boundary rlane, A. K. Lotel fillion, pp 1 44

an experimental sody of the proparation of place waves, using energy flow and density lastene of field vertors. This method reduces the number of variables which must be used in save spraya at for studies.

 The Flune-Farallel Appetrs field of Miss firm its in the fresence of an Iron Mass, 1. M. Shrota, w. h. -71.

Investigates the bia e-parallel magnetic field, a line current which is surrounded by an incomes of arbitrary chipe. Leties the equations determining its field by means of a conformal representative of the liven regions (outer and inter builde ics of the from mass) on the lower sed outer regions of a unit circle. Larrous positions for own or several line currents relative to the from mass are considered as partial care of the general problem. Lives a sample calculation and results of a engermmental check for the case of a single current placed in a square channel in Iron.

 A Thyratron between a thit Which Requires a Commission of Speed Regulation, Ye. 7. Chraham, pp. 73-75

Describes a thyratron drive with a wide range of regulation and high accuracy in maintaining the assigned speed. This drive was developed and built in the Laboratory of Lodeling and logulation of the Electrical Engineering Institute. Results of tests on a commercial model are given.

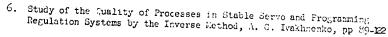
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In a preceding paper, the author considered a device, called a flexible compounding coupling, for eliminating the kinematic lag of servo and programming systems. In this paper, he considers the effect of the transfer coefficient of the flexible compounding coupling on the quality of proceses in systems of the second and third order. He discusses the problem of readching the dynamic equation of the system to its simplest (dimensionless and normed) form, containing the fewest coefficients (parameters). A second-order system is, in the most general case, characterized by three parameters. Third- and fourth-order systems are also characterized by three parameters when the right side of the equation does not contain more than two terms.

Investigation of these cases in the general form becomes possible through simultaneous use of the roots of the characteristic equation (inverse method) and operator notation. Constructs planes of the important parameters which permit one to determine rapidly, without solving the dynamic equations, the indices of the process quality, i.e., the magnitude of kinematic lag, of the first dynamic deviation and of the duration of the regulation process.

7. A Voltage Regulator with a Thermistor, C. X. Bechayev, pp 122-129

Calculates the elements of a voltage regulator with a thermistor. In addition to static operating conditions, the author gives a calculation of the transient time in the regulator when the regulated voltage changes. This calculation gives a good indication of the dynamic properties of the regulator.

8. The Problem of the Maximum Efficiency of a Copper-Oxide Wattmeter, V. L. Eenin, pp 129-141

Analytically determines expressions for collitation the errors of copper-oxide wattmeters with rectifiers having square-law and nonequare-law volt-ampere characteristics. Extermines the maintenance for maximum efficiency of copper-oxide wattmeters of both hopes for a given accuracy of measurement.

 Study of Various Electron-Tube Matthefer Systems, 1... Ornatskiy, pp 141-155

Reviews triefly known electron-take wattmeter systems. Analyses the operation of an electron-take wattmeter, which is based on the use of the square-law sections of the vacuum-take's grid characteristics. Analyses errors caused by noridentical take characteristics and suggests method for eliminating these errors. Derives formalise for determining the errors due to the internal drain of the series and parallel circuits of the instrument and for determining frequency errors due to the presence of dividing capacitors and reactance in the circuits. Twee results of an experimental check of electron-take wattmeters using alodes and mixer takes, loints out advantages and defects of these wattmeters and indicates their fields of application.

10. A Highly Densitive Recording Advertishing Prequency Aster, F. A. Matkov, pp 155-160

beveloped a highly sensitive recording electronic frequency meter with a polarized string vibrator. The instrument can be used to check the frequency of power systems in the narrow range around 50 ags.

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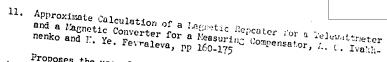


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Proposes the use of a magnetic amplifier with heavy negative feed-back (a magnetic repeater) for remote transmission of watureur readings. A ac. Gives approximate calculations, and cites results of laboratory tests of the magnetic repeater and converter.

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